



Fact Sheet

U.S. Army Corps of Engineers
U.S. Army Engineer Research and Development Center

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Project Title: Reservoir Water Quality Decision Support System

SPONSOR: Environmental Laboratory, ERDC

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The Reservoir Water Quality Decision Support System is designed to assist in the evaluation of water quality concerns and potential implementation of applicable water quality management techniques for reservoirs and tailwaters. The information in the system was compiled as a joint effort conducted by the US Environmental Protection Agency and US Army Corps of Engineers, Engineer Research and Development Center (ERDC) with emphasis on hydropower facilities and Corps of Engineers Dams. Contributors included scientists from the Tennessee Valley Authority, Bureau of Reclamation, and Natural Resources Conservation Service.

The DSS is designed so that decision points allow the user to proceed through the system or move to a branch for more information before returning to the system. Diagnostic software such as empirical models and spreadsheets are included in a toolbox. Currently, the system provides improved problem definition, methods for the evaluation of existing data and identification of additional data needs, identification of potential enhancement techniques, and a preliminary design and cost estimate of selected techniques.

The DSS is designed for users with a basic understanding of water quality processes but includes information from, or links to, other resources. Brief overviews of water quality processes and potential enhancement techniques are provided as a background. Problem and data assessment are then discussed with decision points established to determine the adequacy of the data for defining the problem. Guidance for additional data collection is provided as branch. Once sufficient data are available, links to spreadsheets and simple programs for calculating stability, energy requirements, oxygen deficit rates, and loading, and software for empirical evaluation of eutrophication responses to reductions in nutrient loading are provided. This information is then used to provide guidance for selecting potential enhancement techniques and identify those most applicable to the reservoir or tailwater of interest. Applicable techniques are then further evaluated to provide preliminary design guidance and cost estimates if possible. Advantages and disadvantages for each technique and references to known applications are provided to assist the user in the decision making process.

DSS web site link: [Water Quality Management Decision Support System](#)